

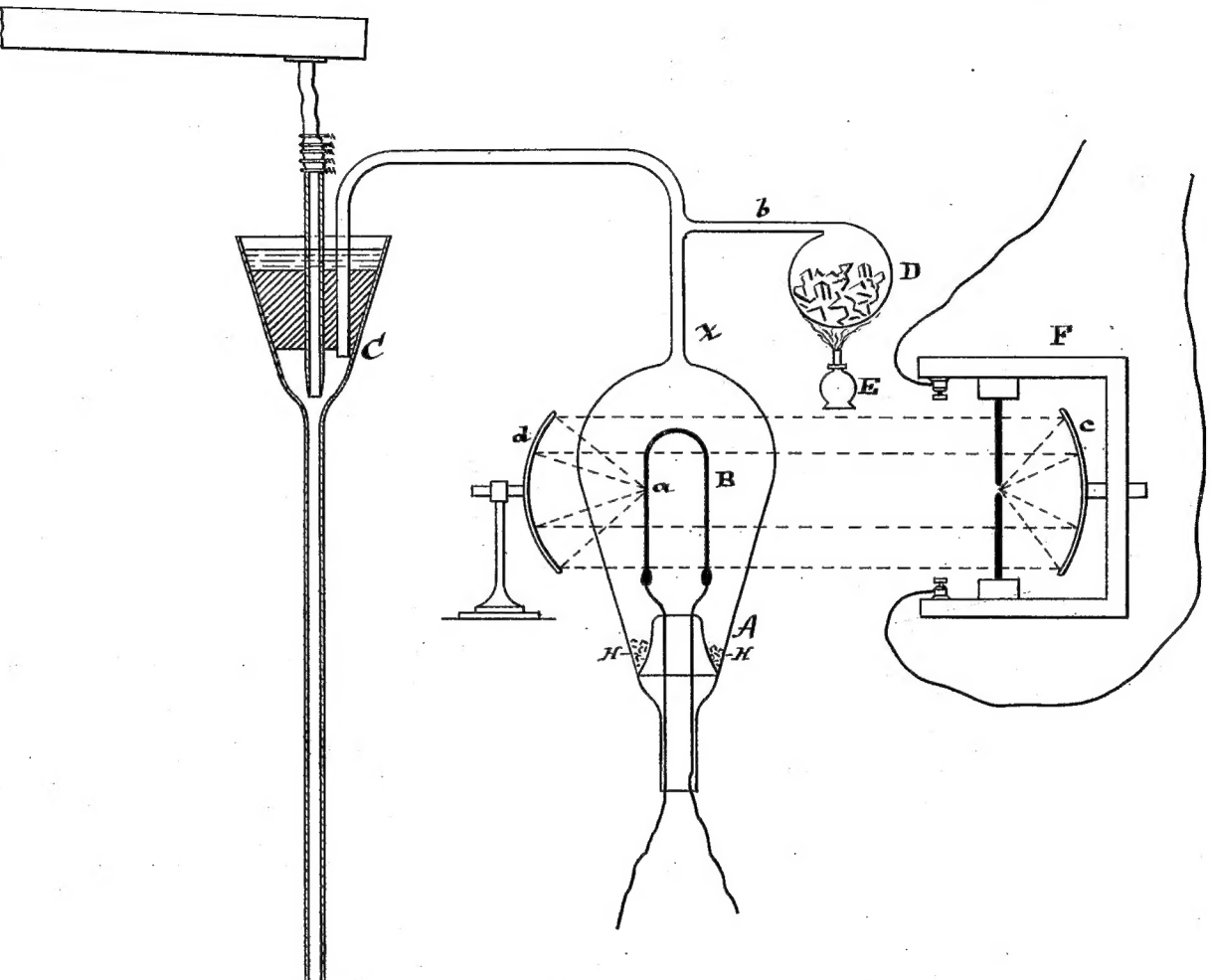
(No Model.)

T. A. EDISON.

MANUFACTURE OF CARBONS FOR ELECTRIC LAMPS.

No. 248,416.

Patented Oct. 18, 1881.



Attest=

Inventor=

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per Dever and Thibault

Atty.

# UNITED STATES PATENT OFFICE.

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## MANUFACTURE OF CARBONS FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 248,416, dated October 18, 1881.

Application filed January 11, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and  
5 useful Improvement in the Manufacture of Carbons for Electric Lamps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing, and to the let-  
10 ters of reference marked thereon.

In the carbon filaments of incandescent electric lamps there are sometimes found weak or defective spots. Some method is therefore desirable by means of which carbon may be de-  
15 posited at such a point to build it up, so that its resistance will be the same as that of the rest of the filament.

The object of this invention is to provide a method and apparatus for accomplishing this  
20 purpose; and to this end it consists in heating the carbon by focusing on the defective point the rays from an external source of heat, as the sun or a voltaic-arc lamp, while at the same time a carbon vapor from heated naphthaline  
25 crystals or other carbon compound which is solid at ordinary temperatures is forced into the globe which contains the carbon filament, and from which the air has been exhausted. The vapor will deposit carbon on the heated  
30 point, which will then become a part of the carbon filament.

The accompanying drawing is a view in section of an appropriate apparatus for this purpose.

35 A is the incandescing electric lamp, containing the carbon filament B, which has been found defective at the point *a*:

C is the mercury-drop for forming the vacuum in the lamp.

40 D is a glass bulb connected with the lamp by the tube *b*. It contains crystals of naphthaline, or other carbon compound of a similar nature, and it may be heated by means of the lamp E.

45 F is a voltaic-arc lamp, the rays from which, by means of the reflectors *c* and *d*, may be focused upon the defective point *a* of the carbon B.

50 Heat being applied to the bulb which contains the carbon compound, it is volatilized,

and the vapor passes through the tube *b* into the lamp, where it deposits an amount of carbon on the heated point of the filament. The rest of the vapor is then removed by means of the mercury-drop.

It is obvious that sources of heat other than that described, including the rays of the sun, may be used.

If desired, a small amount of naphthaline crystals may be placed in the bottom of the inclosing-globe of the lamp, which will, when the lamp is in use, become heated and volatilize, supplying the waste of carbon due to the process known as "electrical carrying." Such crystals H are shown placed in the bottom of the lamp, where they will be subjected to only a very moderate heat, yet a heat sufficient for the purpose. The lamp is sealed off at *x*, and is then ready for use.

What I claim as my invention is—

1. The within-described process of building up or strengthening a defective point in an incandescing conductor for electric lamps, consisting in heating that point to a high temperature by concentrating thereon the heat from an external source, and at the same time allowing a carbon vapor to enter the globe and deposit additional carbon on the heated point, substantially as set forth.

2. The apparatus for building up or repairing defective carbon filaments, consisting of a separate vessel containing a solid hydrocarbon compound volatilizable at low heat, means for passing the vapor into the chamber of the lamp containing the carbon filament, and means for raising any desired portion of the filament to a high temperature by concentrating or focusing upon said portion rays of heat, substantially as shown and described.

3. An electric lamp consisting of a globe inclosing a carbon filament and conducting-wires, and arranged to contain a portion of a solid compound of carbon volatilizable at low heat, substantially as shown and described.

This specification signed and witnessed this 30th day of December, 1880.

THOS. A. EDISON.

Witnesses:

H. W. SEELY,

ERNEST J. BERGGREN.